

Evaluation Models for Building Learning Content Management System (LCMS) in Riyadh City Universities

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ABSTRACT

This paper proposes evaluation model based Learning Content Management System (LCMS) in the university city of Riyadh. The survey was conducted literature and practical web development methodologies to determine the readiness of LCMS University in the city of Riyadh. Framework is evaluated by a valuation model of e-learning anti-hunger program, proposed by Francesco Colace in 2006. Evaluation model was evaluated four main features (management and collaborative approach, interactive learning objects management and adaptation of the path of education). Involves every feature, in their determination, some sub-features. The results of the evaluation model as follows: The sum of the weights of the framework proposed in management feature is 16.7/25, collaborative feature is 9/10, in the adaptive learning path is a 5.5/10 in interactive learning object is 5/5. Sum of the weights of all the features are 36.2/50. Then, the results were compared with each other. Weighs the sum of all of King Saud University and the University of Prince Sultan was 41. While the total weights of King Faisal University, IMAMU, YU and NAUSS was 40, 37.36 and 32, respectively. The evaluation process shows that the proposed framework satisfied with the objectives and tasks required for this work.

Keywords

E-Learning, E-Learning Platform, LCMS, AHP evaluation model, Multiple Criteria Decision Making Problem.

1. INTRODUCTION

The whole world is subject to change and this is the most important perhaps in the last thirty years, and, through the dissemination of new information technologies, adjustments are deeply relations between states and markets, people and culture. Technological revolution clearly strengthened the process of globalization (nowadays the Internet is a global village) and the exchange of information [1].

E-learning is a common way to being able to offer the course content in a longer period compared with the classroom environment and other methods. Through e-learning and education is available all the time, and within seven days and twenty-four hours a day. E-learning reach more learners, and it ensures that the learning environment, which is independent of time and place. As a result, it would lead to defects such as an obstacle to the process of socialization of individuals and insufficient recognition between the teacher and the learner

and the restrictions on communication between learners. These defects have raised the search for new environments, which combine the advantages of e-learning and traditional learning environments [2].

For these reasons, and interesting in learning content management system (LCMS) becomes greater. We can define "it is a multi-user environment that allows the developers learn to create, store, and re-use, management and delivery of digital learning content from a central object repository" [3]. The LCMS provides services that allow content management with special attention to the establishment of their own, import and export [1].

In this research, the researcher proposes a conceptual framework for assessment models to build a Learning Content Management System (LCMS) that characterize the properties of an effective e-learning systems from the perspectives of educational and technical. The proposed framework can be used to provide guidance for the design of systematic LCMS. The objective of this research is to evaluate the the LCMS building models in the university city of Riyadh in order to choose the solution most suitable e-learning system by taking into account the technological and educational aspects to it. In the literature and many models using LCMS. Some evaluation networks are able to evaluate different aspects of the e-learning system. Weakness of this approach is in nice personal judgments, so the starting point of the proposed model is the formulation of multiple criteria decision problem solved by analytic hierarchy process (AHP).

2. RELATED WORK

Many an overview of the research, described the e-learning system and technology, and provides a brief overview of LCMS, and discussed the background of e-learning, select the relevant definition of LCMS. LCMS is an e-learning application on the Internet that allows the coach to deliver content standards - based learning communities of learners. Brooks, providing high popularity of these systems, they tend to be the minimum navigation features and cooperative awareness, students often find themselves learning in a vacuum without feeling the rest of the learning community is doing.

Male Colace, mentioned in his paper, it should be for effective e-learning platform to provide the contents of the educational organization, and the content must be relevant to the user who

is benefiting from them [1].

Yan Qing, presented the evaluation index system based anti - hunger program and established online assessment platform. Was also discussed and the student - centered teaching model, which both teachers and evaluating platform support the students. After the initial application of teaching model in one academic year, have been found on some of the problems, so improving the teaching model and suggested [4].

Roman suggested Background information on the impact assessment which shows the effect of distance education and building shows a methodology for assessing the impact of the learning process of the students of distance education. This paper presented studies show not only means used to address impact assessment , mostly focused on the evaluation of a technology platform and a very small number of assessment of the impact on students through the use of this new form of learning [5] .

Lanzilotti et al, investigated the concept of quality of e-learning systems and proposed a new framework, called tics (and interaction technology , content and services). This framework is the content of one of the aspects of the quality of e - learning, "which focuses on the appropriateness and quality educational materials that can be achieved through design learner - minute [6].

Jurubescu, shows the evolution of e - learning concepts and related tools and their relationship with other concepts, such as knowledge management (KM), human resources management (HRM) and enterprise resource planning (ERP), and information technology. This paper proposed a distinct LCMS LMS and CMS used for general content on the Internet. On the other hand we made the definition is too expensive and yet very little is carried out one of the best tools that help us deal with the reality of the 21st century in terms of learning. Useful discussions on how one or another system of the Organization can be driven by the costs involved, and the desired efficiency, and availability of the product in the market [7]. Ssemugabi, and he added, must be content relevant to the learner, and participating content is relevant , as learners and clear them to use e-learning system to ensure the success of self-learning [8]. Teo, et al. Al. proposed a model called "knowledge - driven model to customize e-learning." They considered re- use and customization of the learner are the most important aspects of e - learning [9].

Zhou, et al. Al, provided a systematic approach for teachers 'knowledge modeling ' for e-learning platform on the basis of the theory of systems engineering and technology, knowledge management and knowledge engineering. This paper focuses on modeling knowledge of mathematics teaching for students with teach difficulties athlete to support e-learning platform based on how much [10]. Chin, presented pointed out practical teaching/learning model to help students achieve a deep approach to study. Implemented this semester, so far the model has changed the direction of students to study, as well as encourage some students towards a deep approach to study [11].

Content management is necessary to provide a well-organized content, and content management allows developers and teachers to control the content of learning, such as create, edit, and share and these contents. Become new sources of learning appeared. The programming languages used to develop learning resources [16]. These resources may be interoperable platform - specific and are not compatible with others. Therefore, this should be a media unite on the basis of known standards such as IMS and the World Federation of learning SCORM (sharable content object reference model).

3. LEARNING CONTENT MANAGEMENT SYSTEM (LCMS)

The LCMS is a system for creating, storing and providing e-learning content of a personal nature. While LCMS providers that differentiate products on the features and capabilities unique, they all share the following elements: a repository for objects of learning, which is the authoring tool / Assembly to create objects of learning, engine deliver dynamic content delivery personal learning to the learner, and that the management tool performs the functions of basic management in the absence of a learning management system [12].

And LMS integrates all aspects of managing the activities of online education. The LCMS provides services allow the contents of this administration, with particular attention to those of creation, import and export. A set of tools to manage all dealer services that the processes of teaching and interaction among the users. In what follows, after describing in detail the characteristics will be determined LCMS, LMS, and a set of tools, technological and educational requirements for the application of distance learning, in order to identify the basic features of the model evaluation. LCMS includes all functions enable the creation and descriptions, import or export the contents as well as the re-use and sharing. The contents of an independent organization generally in containers, called learning objects, and able to meet one or more educational goals [13] [14].

4. RESEARCH PROBLEM AND SIGNIFICANCE

E-learning looming on the horizon for many schools and universities in the Arab countries, especially in the university city of Riyadh. Many schools and universities have the desire to support education and face - to - face and complement the efforts of the home, private, and alternative programs depending on the new form of education (e-learning). The main reason for doing so is to encourage educational institutions to embark on the development of e-learning system is to "enhance the performance of the learner." Also, provision of learning and education for all people, and learning e-learning system provides twenty - four hours a day and access to educational resources.

The importance of the content of the e-learning system led us to propose a conceptual framework for building (LCMS) is responsible for the content management system of e - learning and provides a range of management model , of course . Computer information systems affect many sectors. Learning and education sector is one of these sectors. There is a gap between teachers and e-learning techniques that prevents them to create their own (LCMS). This framework tries to facilitate the process of creating and providing effective learning content. The essence of research is the assessment models to build a learning content management system which distinguishes the characteristics of an effective e-learning system from the perspective of educational and artistic. Then, this assessment is used to increase the quality and efficiency of these models produced in strengthening the role of technology in education which leads to expanded levels of educational outcomes.

5. RESEARCH METHODOLOGY

Methodology of this research study is qualitative and it involves the use of qualitative data, such as documents and data participating observation and analysis of the case study. And directs the framework of this study of the best practices

in building a Learning Content Management System (LCMS), and literature review and suggestions by some experts. The case studies to assist in the construction of the proposed framework.

Research Methodology shows and explains the relationship between the research problem, and review of the literature and the data collection method. And is based on research methodology of this study on data collected in the

investigation of cases of "real life", which are relevant to the research problem. Instrument was reviewed e-learning assessment model anti-hunger program, proposed by Francesco Colace in 2006 to determine the content and face validity. Evaluation model was evaluated four main features, management, collaborative approach, and management of the objects interactive learning and adapting learning path, see Figure (1).

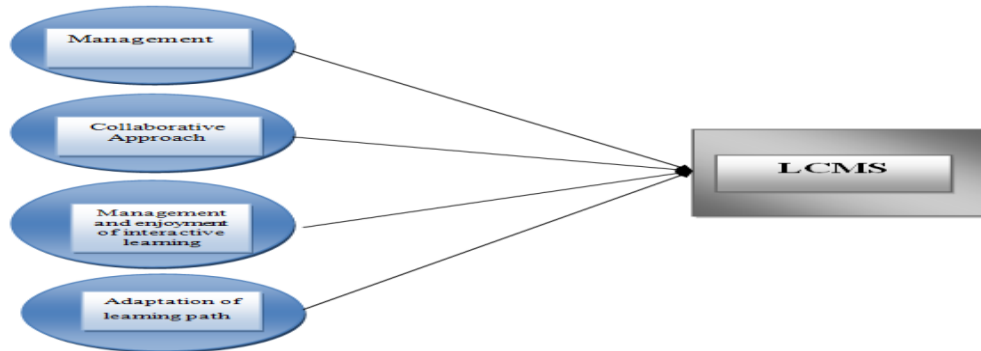


Fig 1: research model

6. SAMPLING DESIGN

The sample design will be collected by selecting a sufficient number of elements from universities in the city of Riyadh. Then, those samples are studied to understand the characteristics of samples or those characteristics to be able to present the properties or other features of the universities in the city of Riyadh.

7. SELECTING THE SAMPLING METHOD

Has been chosen as a sufficient number of items from the three public universities in the city of Riyadh and three private universities located in the city of Riyadh. Was selected public and private universities six in this study randomly from universities, was chosen as the public universities and private 3 3 using LCMS, six universities selected for the survey. Those six universities are three public universities, the University of King Saud, IMAMU and NAUSS, and three private universities, King Faisal University, and the University of Prince Sultan YU. Responses were diverse, representing different University. Judgment involving the selection of Samples University which is the most useful or put in the best position to provide the required information. The samples are often used purposefully to improve representative. In this regard, all the universities selected for this research in line with the selection criteria of selection.

8. INSTRUMENTION

Since the evaluation surveys are usually rather than generative, and they provide the broad results that can be expected for the total weight. The researchers decided to conduct a survey focused is the best way to collect data. The survey includes four parts, management advantage, cooperative, and adopt the path of learning and interactive learning, a total of 29 questions. The first, consisting of 15 questions management feature with a total weight of 25. Second, collaborative feature consists of 5 questions with a total weight of 10. Third, learning path consists adoption of 6 questions with a total weight of 10. Finally, interactive

learning consists of 3 questions with a total weight of 5. The total weight of the university evaluated 50.

9. VALIDITY AND RELIABILITY OF THE INSTRUMENT

Instrument was reviewed e-learning assessment model anti-hunger program, proposed by Francesco Colace in 2006 to determine the content and face validity. Evaluation model was evaluated four main features, management, collaborative approach and management of interactive learning objects and air learning path. Involves every feature in the design of some sub-features. The universities were selected panel on the basis of their own experience using e-learning AHP assessment tools, such as content sharing or management groups' [1].

The instrument was also a test pilot with a group of 15 students. Joined the bank in "e-commerce" of course. These students were excluded, who were using content sharing or group management, from the main sample for the study. Changes recommended by the committee to validate those identifiers and as needed during the pilot testing, where those identifiers are included in the instrument. These changes occurred in the drafting of the terms and instructions to complete the instrument. Determine the internal consistency of the instrument using the same group of students was used in the pilot study. The total weight of the proposed framework management feature in the 25, in a collaborative feature was 10; learning in the course of adoption was 10 and interactive learning object was 5.

10. DATA COLLECTION METHOD

Researcher chose six universities in the city of Riyadh purpose of this study analysis experiments. Frame model is evaluated by the e-learning AHP evaluation model, proposed by Francesco Colace in 2006. Evaluation model was evaluated six key features in the city of Riyadh universities (King Saud University (KSU), Al - University of Imam Muhammad bin Saud Islamic University (IMAMU), Naif Arab University for Security Sciences (NAUSS), Al-Yamamah University (YU), King Faisal (University King Faisal) and Prince Sultan University (PSU).

In addition to these sources, has been consulting with various sources to identify literature on blended learning systems, especially in learning content and LCMS. Then be used on printed documents such as books, magazines, journals, newspapers, and documents published and unpublished, and company reports, letters, reports and e-mails.

The Researcher met with an official curriculum development and ESP at regular times, and presented a researcher presented a set of documents that help in data collection in all parts of the city of Riyadh universities experience in e - learning systems. The following documents: e-mail messages, the analysis of educational curricula MIS in the city of Riyadh, user manual MIS Online, and the meeting of the technical committee reports, reports of meetings, reports on the stages of completion. Researcher sends via e-mail with the developers of e - learning systems such as Robert Blomeyer the developer of educational technology.

11. DATA ANALYSIS

Are analyzed LCMS, KMS, the Almighty, AITS, simulation and other documents relating to the LCMS to determine the main function and properties of LCMS: various documents, including e-learning assessment models, the characteristics of e-learning content. Then the documents are analyzed and the

report form and in the form of a learning management system platforms with other models to obtain benefits from these experiences.

12. COMPARING THE PROPOSED FRAMEWORK WITH OTHER PLATFORMS

Francesco Colace in e-learning AHP evaluation model assessment of four features. After this assessment, we will display the total weights of these platforms. Then, we will compare these weights with the weights of the proposed framework. After this assessment, we will display the total weights of these platforms. Then, we will compare these weights with the weights of the proposed framework.

12.1 Management Index

Management Index = IM = Obtained Value for the supported Tools / Max Value. This index aims to evaluate how many services for the management of students and of their progress are in the various platforms. In the table (1) we show the obtained results. In this table the column weight indicates the relative importance of the feature.

Table 1. Total weights of management feature for the evaluated platforms.

Feature	Weight	KSU	IMAMU	NAUSS	YU	KFU	PSU
Course management	2	2	2	1	1	2	2
Groups management	2	1	0	0	0	2	0
Content management	1	1	0	1	0	1	1
Content Sharing	1	1	0	1	1	0	1
Import standard content	1	0	1	0	0	0	0
Import Content	2	0	2	0	0	0	0
New course management	1	0	0	0	0	0	0
Reports	2	2	2	1	2	2	2
Assessment	1	1	1	1	1	1	1
Multiple Question Test	1	1	1	1	0	0	1
Assessment report	2	0	0	0	0	0	2
User management	2	2	2	2	2	2	2
On-line registration	2	2	2	2	2	2	2
Progress Tracking	2	2	2	2	2	2	2
Connecting with other platforms	3	3	3	2	3	3	3
Total	25	18	18	14	14	17	19

12.2 Collaborative Index

IC = Obtained Value for the supported tools / Max Value. This index aims to evaluate how many “collaborative” services are in the various platforms. With the term “collaborative” services we intend these platform services

allowing the interaction among students and/or teachers. In the table (2) we show the obtained results. In this table the column Weight indicates the relative importance of the feature.

Table 2. Total weights of collaborative feature for the evaluated platforms

Feature	Weight	KSU	IMAMU	NAUSS	YU	KFU	PSU
E-mail	2	2	2	2	2	2	2
Forum	2	2	2	2	2	2	2
Chat	2	2	0	0	2	2	0
Streaming Audio/video	2	2	2	2	2	2	2
Contents download	2	2	2	2	2	2	2
Total	10	10	8	8	10	10	8

12.3 Adaptation of user's formative learning path Index

LPA = Obtained Value for the supported tools / Max Value.
 This index aims to evaluate how many services for the adoption of user's formative learning path are in the various

platforms. These services have to allow the creation of personalized learning paths and the continue assessment of students. In the table (3) we show the obtained results. In this table the column Weight indicates the relative importance of the feature.

Table 3. Total weights of Adaptation of learning path feature for the evaluated platforms

Feature	Weight	KSU	IMAMU	NAUSS	YU	KFU	PSU
Progress Tracking	2	2	1	2	2	2	2
Groups management	2	2	1	1	2	2	2
Reports	2	2	2	1	2	2	2
Assessment	1	1	1	1	1	1	1
Multiple Question Test	1	1	1	0	0	1	0
Assessment report	2	0	0	0	0	0	2
Total	10	8	6	5	7	8	9

12.4 Management and enjoyment of interactive learning objects

MIO = Obtained Value for the supported tools / Max Value

This index aims to evaluate how many services for the management and enjoyment of interactive learning objects are in the various platforms. In the table (4) we show the obtained results. In this table the column Weight indicates the relative importance of the feature.

Table 4. Total weights of interactive learning objects feature for the evaluated platforms

Feature	Weight	KSU	IMAMU	NAUSS	YU	KFU	PSU
Streaming Audio/video	1	1	1	1	1	1	1
Contents download	2	2	2	2	2	2	2
Content Sharing	2	2	2	2	2	2	2
Total	5	5	5	5	5	5	5

At the end of this phase we can compare the “relative” obtained results of platforms in every feature in order to have a standing. In the table (5) we show the According to the AHP

approach we defined the “absolute” weight of every feature keeping in mind the constraints of the selected scenario.

According to the AHP strategy we can compose the results in the following way:

Table 5. Total weights of the five features in all of evaluated platforms

The evaluated University	Total weights
KSU	41
IMAMU	37
NAUSS	32
YU	36
KFU	40
PSU	41

Figure (2) displays a comparison between the evaluated platforms. The highest weight of the evaluation model is (41) pints.

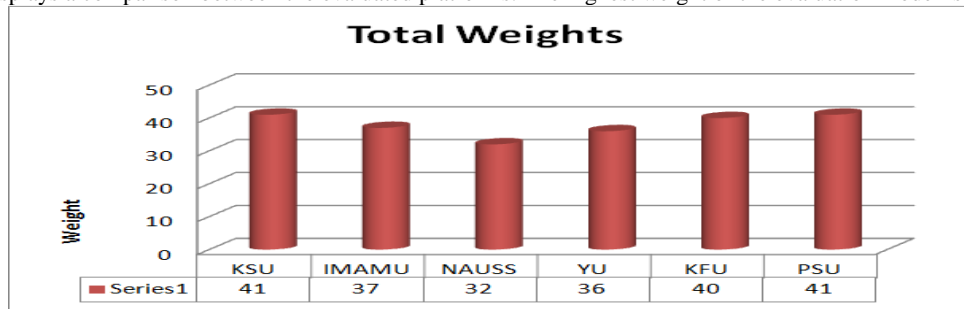


Figure 2. Comparison of total weights of the four evaluated feature

12.5 Analyzing the results of AHP evaluation

Previously, the highest weight of the evaluation model is (50) points. The proposed framework collected (50 points), this value is the closure of many of the highest value. University collected the largest number of points (41) points. Moreover, the results table (6) and (Figure 3) show that the blackboard and Model pads collected the largest number of points (41) points. Show that the King Saud University and the University

of Prince Sultan collect high points (41) points. This value is equal to the highest weight in the evaluation model. Collected NAUSS the least amount of points (32) points. This value is less than the King Saud University and Prince Sultan University in NAUSS (18) points, YU (14), IMAMU (13) and more from King Faisal University in (10) points, equal to King Saud University and the University of Prince Sultan weights. Sort the table (6) University evaluated in descending order according to their weights.

Table 6. Sorted the evaluated platforms in descending order according to their weights.

The evaluated Platform	Total weights	The difference with highest weight
KSU	41	-9
IMAMU	36	-13
NAUSS	32	-18
YU	36	-14
KFU	40	-10
PSU	41	-9

Figure (3) embedded the total weights of the proposed framework with the others total weights and illustrates the differences of these values with the highest weight.

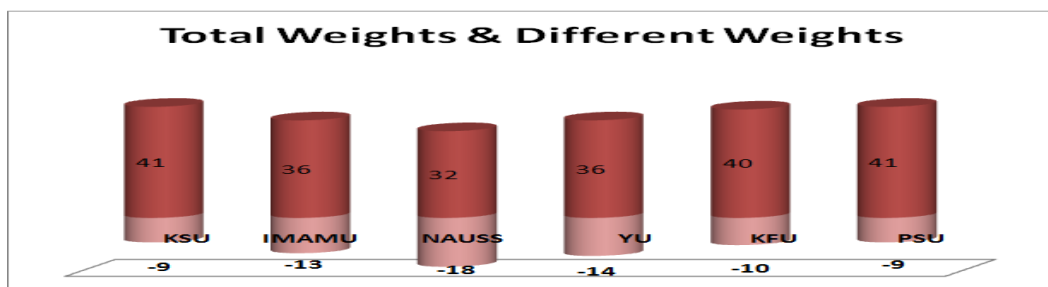


Figure 3. Comparison of total weights of the four evaluated feature with the proposed framework

Could be the outline of the results of e-learning AHP evaluation model as follows:

- The proposed framework covers most of the features that are evaluated proposed evaluation model, which provides the framework most of the services and functions that are required in LCMS.
- The proposed framework taking into account the artistic and educational dimensions due to the results of the evaluation and application of the proposed dimensions (technical and educational).
- The proposed framework has achieved the objectives of this study.
- Proposed framework for the application of a set of functions proposed LCMS.

13. ACKNOWLEDGMENTS

The main objective of this paper is to evaluate the conceptual framework to build a learning content management system. The evaluation process is based on e - learning AHP evaluation model. This model is proposed by Francesco Colace in 2006. Evaluation model was evaluated four main features (management and collaborative approach, interactive learning objects management and adaptation of the path of education). Involves every feature, in their determination, some sub- features. Sum of the weights of the proposed framework in management feature is 16.7/25, collaborative feature is 9 /10, in the adaptive learning path is a 5.5/10 and the object in the interactive learning is a 5 /5. Sum of the weights of all the features are 36.2/50 .Then, the results were compared with each other. Weighs the sum of all of King Saud University and the University of Prince Sultan was 41. While the total weights of King Faisal University, IMAMU, YU and NAUSS was 40, 37.36 and 32, respectively. The evaluation process shows that the proposed framework satisfied with the goals and tasks required for this work.

The results of this study demonstrate the following. A greater level of students and frequency of participation in the Forum raises LCMS or more positive views reflect the e-learning system. This study shows that students in the study group decreased to either neutralize or groups assimilators, also said in Kolb categories. As we mentioned earlier, indicating learning model of learning style rules within academic disciplines. Neutralizes migrate towards service - type occupations, such as arts and social sciences and humanities teachers, where scientists, engineers, technicians and academics. Forum and this method contribute to students ' learning. The students, who are low levels of achievement, they are not accustomed to using the Internet environment stresses with the importance of making students aware of these environments through e-learning method before the adoption of this method, which is based entirely on online learning, which support online courses.

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